

ONLINE LINKS

[Product overview —>](#)
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CERTIFICATION

- MID-compliant and tamper-proof
- Meter reading cycle to PTB-A 50.7
- Updateable according to MID guidelines (software separation)

EEG

- Legally valid billing & acquisition
- Self-supplier & users of the BesAR

INTERFACES

- RS-485

MODULAR

- Plug-on module
- Temperature measurement
- 4th current input
- 2 residual current inputs
- Ethernet interface

OVERVOLTAGE CATEGORY

- 600 V CAT III

MEASURING ACCURACY

- Class 0.2S
- Current: 0.2%
- Voltage: 0.2%

POWER QUALITY

- Harmonics current up to the 40th harmonic
- Distortion factor THD-U/THD-I

PERIPHERALS

- 3 digital inputs and outputs
- 1 analog output

MEASUREMENT DATA MEMORY

- 8 MB/400,000 measured values and two years of meter reading cycle values

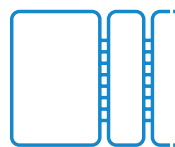
MODULARLY EXPANDABLE NETWORK ANALYZER

(MID, METER READING CYCLE)



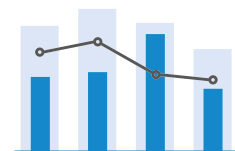
CERTIFICATION

VDE-tested meter reading cycle
measurement acc. to PTB-A 50.7



MODULAR

Future-proof thanks to
retrofitable modules and firmware



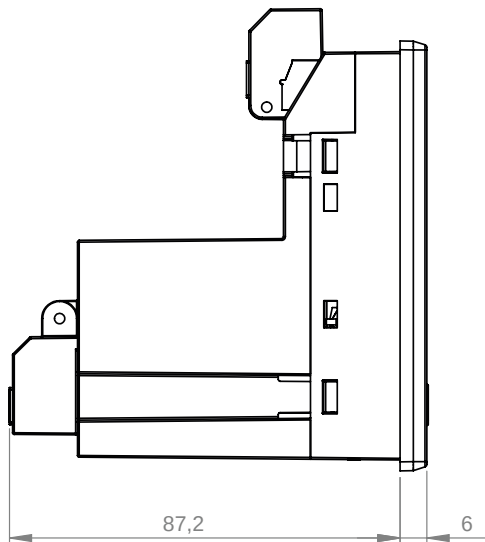
ENERGY MANAGEMENT

Standard compliance for secure re-
imbursement of EEG apportionment

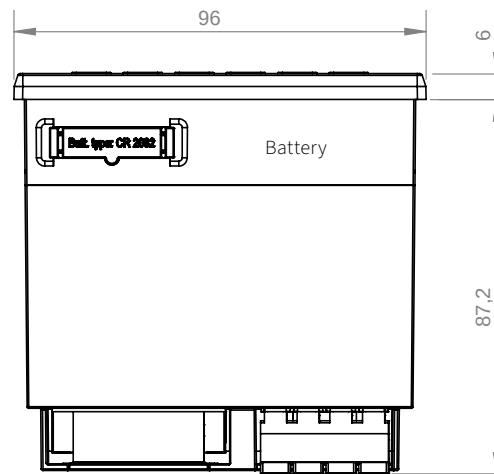
DIMENSIONED DRAWING

All dimensions in mm

Side view

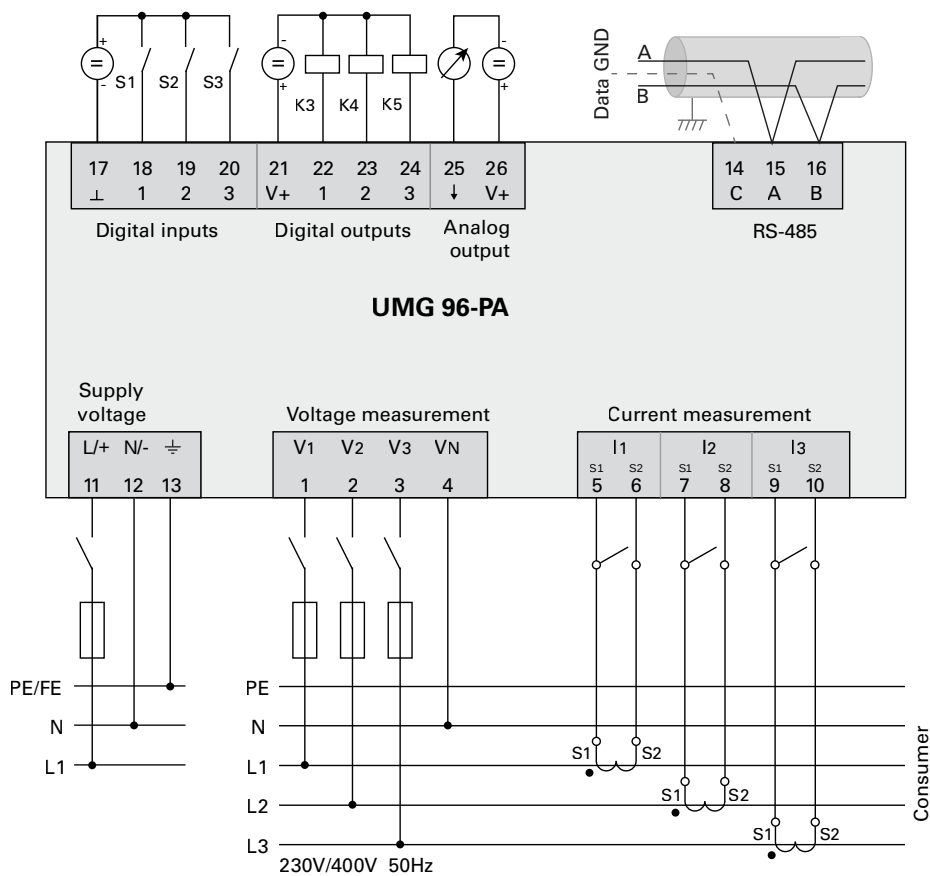


Bottom view



Cutout dimensions: $92^{+0,8} \times 92^{+0,8}$ mm

CONNECTION EXAMPLE



TECHNICAL DATA

UMG 96-PA-MID+ (basic device with MID and meter reading cycle)	
ITEM NO. (90–277 VAC / 90–250 VDC)	5232004
GENERAL	
Net weight (with attached plug-in connectors)	approx. 250 g (0.55 lbs)
Package weight (incl. accessories)	approx. 500 g (1.1 lbs)
Battery	Type Lithium CR2032, 3 V, (UL 1642 approved)
Data memory	8 MB
Backlight service life	40000 h (backlight reduces to approx. 50 % over this period)
Impact resistance	IK07 according to IEC 62262
TRANSPORT AND STORAGE	
The following information applies to devices that are transported or stored in their original packaging.	
Free fall	1 m (39.37 in)
Temperature	–25 °C to +70 °C (–13 °F to 158 °F)
Relative air humidity (non-condensing)	0 to 90 % RH
ENVIRONMENTAL CONDITIONS DURING OPERATION	
Install the device in a weather-protected and stationary location. Protection class II according to IEC 60536 (VDE 0106, Part 1).	
Rated temperature range	–10 °C to +55 °C (14 °F to 131 °F)
Relative air humidity (non-condensing)	0 to 75 % RH
Operating elevation	0 to 2000 m (6562 ft) above sea level
Pollution degree	2
Mounting orientation	As desired
Ventilation	No forced ventilation required
Protection against foreign matter and water	
– Front	IP40 according to EN60529
– Rear	IP20 according to EN60529
– Front with seal	IP54 according to EN60529
SUPPLY VOLTAGE	
Option 230 V:	
Nominal range	AC 90 V–277 V (50/60 Hz) or DC 90 V–250 V, 300 V CAT III
Power consumption	max. 4.5 VA / 2 W
Operating range	±10 % of nominal range
Internal fuse, not replaceable	Type T1A / 250 V DC / 277 V AC according to IEC 60127
Recommended overcurrent protective device for the line protection (UL approval)	Option 230 V: 6 – 16 A (Char. B)
Recommendation for the maximum number of devices on a line circuit breaker: Option 230 V: Line circuit breaker B6A: max. 4 devices / line circuit breaker B16A: max. 11 devices	

VOLTAGE MEASUREMENT

Three-phase 4-conductor systems with rated voltages up to	417 V / 720 V ($\pm 10\%$) according to IEC 347 V / 600 V ($\pm 10\%$) according to UL MID: see table „Technical data for the MID+ certified meter“
Three-phase 3-conductor systems with rated voltages up to	600 V ($\pm 10\%$)
Single-phase 2-conductor system with rated voltages up to	480 V ($\pm 10\%$)
Overvoltage category	600 V CAT III, 300 V CAT IV
Rated surge voltage	6 kV
Protection of the voltage measurement	1–10 A tripping characteristic B (with IEC/UL approval)
Measuring range L-N	0 ¹⁾ to 600 V _{rms} (max. overvoltage 800 V _{rms})
Measuring range L-L	0 ¹⁾ to 1040 V _{rms} (max. overvoltage 1350 V _{rms})
Resolution	0.01 V
Crest factor	2.45 (related to the measuring range)
Impedance	3 M Ω /phase
Power consumption	approx. 0.1 VA
Sampling frequency	8.13 kHz
Frequency of the fundamental oscillation	45 Hz to 65 Hz
- Resolution	0.01 Hz
Fourier analysis	1st–40th Harmonics

1) The device only determines measured values if a voltage L1-N of greater than 20 V_{eff} (4-conductor measurement) or a voltage L1-L2 of greater than $\sqrt{3}$ V_{eff} (3-conductor measurement) is applied to voltage measurement input V1.

CURRENT MEASUREMENT

Nominal current	5 A
Measuring range	0.005 to 6 A _{rms}
Crest factor	2 (relative to 6 A _{rms})
Overvoltage category	300 V CAT II
Rated surge voltage	2.5 kV
Power consumption	approx. 0.2 VA (R _i = 5 m Ω)
Overload for 1 s	60 A (sinusoidal)
Resolution	0.1 mA (display 0.01 A)
Sampling frequency	8.13 kHz
Fourier analysis	1st–40th Harmonics

SERIAL INTERFACE

RS-485 - Modbus RTU/Slave	9.6 kbps, 19.2 kbps, 38.4 kbps, 57.6 kbps, 115.2 kbps
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DIGITAL OUTPUTS (3 digital outputs, solid state relays, not short-circuit proof)

Switching voltage	max. 33 V AC, 40 V DC
Switching current	max. 50 mA _{eff} AC/DC
Response time	approx. 200 ms
Pulse output	max. 50 Hz (energy pulses)

Digital output 1 (terminal 21/22) of the UMG 96-PA-MID+ provides the active energy (applied/delivered) measured value!

DIGITAL INPUTS (3 digital inputs, solid state relays, not short-circuit proof)

Maximum counter frequency	20 Hz
Input signal applied	18 V to 28 V DC (typically 4 mA)
Input signal not applied	0 to 5 V DC, current less than 0.5 mA

CABLE LENGTH (DIGITAL INPUTS/OUTPUTS)

Up to 30 m (32.81 yd)	Unshielded
Greater than 30 m (32.81 yd)	Shielded

ANALOG OUTPUTS

External power supply	max. 33 V
Current	0 to 20 mA
Update time	1 s
Load	max. 300 Ω
Resolution	10 bit

TERMINAL CONNECTION CAPACITY (SUPPLY VOLTAGE) *Connectible conductors. Only connect one conductor per terminal!*

Single core, multi-core, fine-stranded	0.2–4.0 mm ² , AWG 28-12
Wire ferrules (non-insulated)	0.2–2.5 mm ² , AWG 26-14
Wire ferrules (insulated)	0.2–2.5 mm ² , AWG 26-14
Tightening torque	0.4–0.5 Nm (3.54–4.43 lbf in)
Strip length	7 mm (0.2756 in)

CONNECTION CAPACITY OF THE TERMINALS (VOLTAGE MEASUREMENT) *Connectible conductors. Only connect one conductor per terminal!*

Single core, multi-core, fine-stranded	0.2–4.0 mm ² , AWG 28-12
Wire ferrules (non-insulated)	0.2–2.5 mm ² , AWG 26-14
Wire ferrules (insulated)	0.2–2.5 mm ² , AWG 26-14
Tightening torque	0.4–0.5 Nm (3.54–4.43 lbf in)
Strip length	7 mm (0.2756 in)

CONNECTION CAPACITY OF THE TERMINALS (CURRENT MEASUREMENT) *Connectible conductors. Only connect one conductor per terminal!*

Single core, multi-core, fine-stranded	0.2–4 mm ² , AWG 28-12
Wire ferrules (non-insulated)	0.2–4 mm ² , AWG 26-12
Wire ferrules (insulated)	0.2–2.5 mm ² , AWG 26-14
Tightening torque	0.4–0.5 Nm (3.54–4.43 lbf in)
Strip length	7 mm (0.2756 in)

TERMINAL CONNECTION CAPACITY (SERIAL INTERFACE) *Connectible conductors. Only connect one conductor per terminal!*

Single core, multi-core, fine-stranded	0.2–1.5 mm ² , AWG 28-16
Wire ferrules (non-insulated)	0.2–1.5 mm ² , AWG 26-16
Wire ferrules (insulated)	0.2–1.5 mm ² , AWG 26-16
Tightening torque	0.2–0.25 Nm (1.77–2.21 lbf in)
Strip length	7 mm (0.2756 in)

CONNECTION CAPACITY OF THE TERMINALS (DIGITAL INPUTS/OUTPUTS, ANALOG OUTPUT)

Connectible conductors. Only connect one conductor per terminal!

Single core, multi-core, fine-stranded	0.2–1.5 mm ² , AWG 28-16
Wire ferrules (non-insulated)	0.2–1.5 mm ² , AWG 26-16
Wire ferrules (insulated)	0.2–1.5 mm ² , AWG 26-16
Tightening torque	0.2–0.25 Nm (1.77–2.21 lbf in)
Strip length	7 mm (0.2756 in)

TECHNICAL DATA FOR THE MID+ CERTIFIED METER

Voltage measurement	3 x 57.7/100 V ... 3 x 289/500 V ¹⁾
Current measurement (measuring range)	0.002 to 6 A
Frequency range	45–65 Hz
Reference frequency	50 Hz
Accuracy class	B
Pulse valency S0 (pulse constant)	10,000 pulses/kWh ²⁾
Electromagnetic environmental conditions	Class E2 (MID 2014/32/EU)
Mechanical environmental conditions	Class M1 (MID 2014/32/EU)

1) The following applies for the UMG 96-PA-MID+ when measuring voltage using voltage transformers:

Use calibrated/permissible voltage transformers for MID-compliant measurement (secondary: 3 x 57.7/100 V – 3 x 230/400 V).

2) The pulse valency S0 is automatically adapted to the voltage transformer ratio that has been set.

The current pulse valency S0 appears in the measuring display Active energy.